

**ULTRAFAST SAMPLER WITH NON-PARALLEL SHOCKLINE**

**ABSTRACT**

An ultrafast sampling system includes an interposer and a sampler that include series of Schottky diodes configured with a non-parallel waveguide to form shocklines or nonlinear transmission line (NLTLs) that produce a differential strobe pulse. The shocklines are defined by non-parallel conductors that are configured as, for example, triangular, dentate, arcuate, or other shapes, or as conductors that have edges that are triangular, dentate, arcuate, or the like. The conductors are defined with respect to a substrate, and are airbridged so that at least some portions of the conductors are displaced from the substrate to reduce waveguide capacitance. Electrical connection to the sampler is made with airline having a inner conductor that is deformable to contact an input pad defined on the sampler.